

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

1. (Currently Amended) An isolated microorganism which extracellularly secretes an unsaturated fatty acid-containing lipid as lipid vesicles encapsulating said lipid, wherein said microorganism is *Mortierella elongata* SAM 0219 or *Mortierella alpina* SAM 2241.
2. (Currently Amended) The microorganism according to claim 1 wherein said unsaturated fatty acids are fatty acids having 18 carbons or more and two or more double bonds.
- 3-6. (Canceled)
7. (Previously Presented) The microorganism according to claim 1, which has a property of forming lipid vesicles containing a lipid around the colonies when said microorganism is grown on a solid medium, and/or of making the culture liquid cloudy when said microorganism is cultured in a transparent liquid medium.
8. (Previously Presented) The microorganism according to claim 1, which is selected by subjecting a microorganism having an ability to accumulate an

unsaturated fatty acid-containing lipid in the cell to mutation, gene manipulation or cell fusion.

9. (Previously Presented) The microorganism according to claim 1, which is selected by subjecting a microorganism having an ability of accumulating an unsaturated fatty acid-containing lipid in the cell to mutation, gene manipulation or cell fusion,

culturing the obtained strains on a solid medium to select strains of which colonies are covered with lipid-containing lipid vesicles at the periphery, and then selecting those strains that make the culture liquid cloudy when said microorganism is cultured in a transparent liquid medium.

10. (Previously Presented) The microorganism according to claim 1, which can be turned into a spheroplast or a protoplast.

11. (Currently Amended) An isolated filamentous fungus microorganism having a property of extracellularly secreting a lipid as lipid vesicles encapsulating said lipid, wherein said lipid contains unsaturated fatty acids, wherein said microorganism is *Mortierella elongata* SAM 0219 or *Mortierella alphina* SAM 2241.

12. (Previously Presented) The microorganism according to claim 1, wherein said extracellularly secreted lipid is a lipid in which 50% or more is triglyceride.

13. (Previously Presented) The microorganism according to claim 1,  
wherein said unsaturated fatty acids are arachidonic acid.

14. (Original) The microorganism according to claim 13 wherein said  
lipid contains 10% or more arachidonic acid relative to the total fatty acids.

15. (Withdrawn) Lipid vesicles encapsulating an unsaturated fatty acid-  
containing lipid.

16. (Withdrawn) The lipid vesicles according to claim 15 wherein said  
unsaturated fatty acids are unsaturated fatty acids having 18 or more carbons and  
two or more double bonds.

17. (Withdrawn) The lipid vesicles according to claim 15, wherein said lipid  
vesicles are produced by a microorganism.

18. (Withdrawn) Lipid vesicles encapsulating a lipid obtained from a  
culture liquid prepared by culturing the microorganism according to claim 1 in a liquid  
medium.

19. (Withdrawn) The lipid vesicles according to claim 15, which can be  
uniformly dispersed in water or a hydrophilic substance.

20. (Withdrawn) The lipid vesicles according to claim 15, which stably retains the lipid encapsulated within said lipid vesicles against oxidation.

21. (Withdrawn) The lipid vesicles according to claim 15, which can be separated by centrifugation.

22. (Withdrawn) The lipid vesicles according to claim 15, wherein the membrane of said lipid vesicles comprises sugar, protein, and lipid.

23. (Withdrawn) The lipid vesicles according to claim 15, which has an average diameter of 0.2 to 10  $\mu\text{m}$ .

24. (Withdrawn) The lipid vesicles according to claim 15, wherein the lipid encapsulated in said lipid vesicles is a lipid in which 50% or more is triglyceride.

25. (Withdrawn) A lipid isolated from the lipid vesicles according to claim 15.

26. (Withdrawn) A food, a cosmetic, or an animal feed comprising the lipid vesicles according to claim 15 added thereto.

27. (Withdrawn) The food according to claim 26 wherein the food comprising the lipid vesicles added thereto is a functional food, a nutrient

supplement, formula for premature infants, modified milk for babies, a baby food, a food for pregnant women or a food for the aged people.

28. (Withdrawn) The food according to claim 26 wherein the foods to which the lipid vesicles have been added are beverages.

29. (Withdrawn) A food, a cosmetic, a pharmaceutical or an animal feed comprising the lipid according to claim 25 added thereto.

30. (Currently Amended) A method of producing lipid vesicles which method comprises culturing the microorganism ~~according to of~~ claim 1 in a liquid medium and then collecting the lipid vesicles encapsulating a lipid from the culture liquid.

31. (Currently Amended) A method of producing lipid vesicles which method comprises continuously culturing the microorganism ~~according to of~~ claim 1 in a liquid medium and then continuously collecting the lipid vesicles encapsulating a lipid from the culture liquid.

32. (Currently Amended) A method of producing a lipid which method comprises culturing the microorganism ~~according to of~~ claim 1 in a liquid medium, collecting lipid vesicles encapsulating a lipid from the culture liquid, and separating a lipid containing fatty acids from said lipid vesicles.

33. (Currently Amended) A method of producing unsaturated fatty acids which method comprises culturing the microorganism ~~according to~~ of claim 1 in a liquid medium, collecting lipid vesicles encapsulating a lipid from the culture liquid, separating the lipid containing fatty acids from said lipid vesicles, and isolating the unsaturated fatty acids from said lipid.

34. (Currently Amended) An isolated microorganism, wherein said microorganism is *Mortierella elongata* SAM 0219 or *Mortierella alpina* SAM 2241 having a property of extracellularly secreting a lipid as lipid vesicles encapsulating said lipid, wherein said lipid contains unsaturated fatty acids that have 18 carbons and three or more double bonds or 20 or more carbons and two or more double bonds.

35-36. (Canceled)

37. (Previously Presented) The microorganism according to claim 34, which has a property of forming lipid-containing lipid vesicles around the colonies thereof when said microorganism is grown on a solid medium, and/or of making the culture liquid cloudy when said microorganism is cultured in a transparent liquid medium.

38. (Previously Presented) The microorganism according to claim 34 obtained by subjecting a microorganism which has an ability of intracellularly accumulating a lipid containing fatty acids that have 18 carbons and three or more

double bonds or 20 or more carbons and two or more double bonds, to mutation, gene manipulation or cell fusion.

39. (Previously Presented) The microorganism according to claims 35 obtained by subjecting a microorganism which has an ability of intracellularly accumulating a lipid containing fatty acids that have 18 carbons and three or more double bonds or 20 or more carbons and two or more double bonds, to mutation, gene manipulation or cell fusion, and

selecting, from the strains obtained, strains that make the culture liquid cloudy and then separates a lipid layer when cultured in a transparent liquid medium.

40. (Previously Presented) The microorganism according to claim 34, which can be turned into a spheroplast or a protoplast.

41. (Previously Presented) The microorganism according to claim 34, wherein said extracellularly secreted lipid is a lipid in which 50% or more is triglyceride.

42. (Previously Presented) A method of producing a lipid containing unsaturated fatty acids which method comprises culturing the microorganism according to claim 34 in a liquid medium and collecting the lipid from the culture liquid.

43. (Previously Presented) A method of producing a lipid containing unsaturated fatty acids which method comprises continuously culturing the microorganism according to claim 34 in a liquid medium and then continuously collecting the lipid from the culture liquid.

44. (Canceled)

45. (Withdrawn) The screening method according to claim 74 wherein said unsaturated fatty acids have 18 carbons and three or more double bonds or 20 or more carbons and two or more double bonds.

46. (Withdrawn) The screening method according to claim 74 wherein said microorganism is a filamentous fungus.

47. (Withdrawn) A screening method wherein strains having a property of extracellularly secreting an unsaturated fatty acid-containing lipid are selected by subjecting a microorganism having an ability to accumulate the unsaturated fatty acid-containing lipid in the cell to mutation, gene manipulation or cell fusion, and culturing the strains obtained on a solid medium to determine strains of which colonies are covered with lipid-containing lipid vesicles at the periphery.

48. (Withdrawn) A screening method wherein strains having a property of extracellularly secreting an unsaturated fatty acid-containing lipid are selected by

subjecting a microorganism having an ability to accumulate the unsaturated fatty acid-containing lipid in the cell to mutation, gene manipulation or cell fusion, culturing the strains obtained on a solid medium to select strains of which colonies are covered with lipid-containing lipid vesicles at the periphery, and further culturing the selected strains in a transparent liquid medium to determine strains for which the culture liquid becomes cloudy.

49. (Withdrawn) The screening method according to claim 47, wherein said microorganism is subject to mutation treatment with N-methyl-N'-nitro-N-nitrosoguanidine (NTG).

50. (Canceled)

51. (Withdrawn) A microorganism selected by the screening method according to claim 74.

52. (Previously Presented) The microorganism according to claim 34, wherein said unsaturated fatty acid is selected from the group consisting of  $\gamma$ -linolenic acid, arachidonic acid, 4,7,10,13,16,19-docosahexaenoic acid (DHA) and  $\omega$ 9 highly unsaturated fatty acids.

53. (Canceled)

54. (Previously Presented) The microorganism according to claim 1, wherein at least one of a reaction in the microorganism selected from the group consisting of  $\Delta 5$  desaturation reaction,  $\Delta 6$  desaturation reaction,  $\Delta 9$  desaturation reaction,  $\Delta 12$  desaturation reaction,  $\omega 3$  desaturation reaction and chain elongation reaction is enhanced, or reduced or missing.

55. (Currently Amended) The microorganism according to claim 6 1, which has a property of forming lipid vesicles containing a lipid around the colonies when said microorganism is grown on a solid medium, and/or of making the culture liquid cloudy when said microorganism is cultured in a transparent liquid medium.

56. (Previously Presented) The microorganism according to claim 7, which is selected by subjecting a microorganism having an ability to accumulate an unsaturated fatty acid-containing lipid in the cell to mutation, gene manipulation or cell fusion.

57. (Previously Presented) The microorganism according to claim 8, which is selected by subjecting a microorganism having an ability of accumulating an unsaturated fatty acid-containing lipid in the cell to mutation, gene manipulation or cell fusion,

culturing the obtained strains on a solid medium to select strains of which colonies are covered with lipid-containing lipid vesicles at the periphery, and then selecting those strains that make the culture liquid cloudy when said microorganism is cultured in a transparent liquid medium.

58. (Previously Presented) The microorganism according to claim 2, wherein said unsaturated fatty acids are arachidonic acid.

59. (Withdrawn) The lipid vesicles according to claim 15 wherein said unsaturated fatty acids are unsaturated fatty acids that have 18 carbons and three or more double bonds or 20 or more carbons and two or more double bonds.

60. (Withdrawn) Lipid vesicles encapsulating a lipid obtained from a culture liquid prepared by culturing the microorganism according to claim 55 in a liquid medium.

61. (Withdrawn) The lipid vesicles according to claim 60, wherein the lipid encapsulated in said lipid vesicles is a lipid in which 50% or more is triglyceride.

62. (Withdrawn) A lipid isolated from the lipid vesicles according to claim 62.

63. (Withdrawn) A food, a cosmetic, or an animal feed comprising the lipid vesicles according to claim 61 added thereto.

64. (Withdrawn) A food, a cosmetic, a pharmaceutical or an animal feed comprising the lipid according to claim 62 added thereto.

65. (Previously Presented) A method of producing lipid vesicles which method comprises culturing the microorganism according to claim 57 in a liquid medium and then collecting the lipid vesicles encapsulating a lipid from the culture liquid.

66. (Previously Presented) A method of producing lipid vesicles which method comprises continuously culturing the microorganism according to claim 57 in a liquid medium and then continuously collecting the lipid vesicles encapsulating a lipid from the culture liquid.

67. (Previously Presented) A method of producing a lipid which method comprises culturing the microorganism according to claim 57 in a liquid medium, collecting lipid vesicles encapsulating a lipid from the culture liquid, and separating a lipid containing fatty acids from said lipid vesicles.

68. (Previously Presented) A method of producing unsaturated fatty acids which method comprises culturing the microorganism according to claim 56 in a liquid medium, collecting lipid vesicles encapsulating a lipid from the culture liquid, separating the lipid containing fatty acids from said lipid vesicles, and isolating the unsaturated fatty acids from said lipid.

69. (Canceled)

70. (Previously Presented) The microorganism according to claim 37 obtained by subjecting a microorganism which has an ability of intracellularly accumulating a lipid containing fatty acids that have 18 carbons and three or more double bonds or 20 or more carbons and two or more double bonds to mutation, gene manipulation or cell fusion.

71. (Previously Presented) The microorganism according to claim 39, wherein said extracellularly secreted lipid is a lipid in which 50% or more is triglyceride.

72. (Previously Presented) A method of producing a lipid containing unsaturated fatty acids which method comprises culturing the microorganism according to claim 39 in a liquid medium and collecting the lipid from the culture liquid.

73. (Previously Presented) A method of producing a lipid containing unsaturated fatty acids which method comprises continuously culturing the microorganism according to claim 39 in a liquid medium and then continuously collecting the lipid from the culture liquid.

74. (Withdrawn) A screening method for determining whether a microorganism has an ability of extracellularly secreting a lipid containing unsaturated fatty acids comprising  
culturing a microorganism in a transparent liquid medium, and

determining whether the culture liquid becomes cloudy.

75. (Withdrawn) A screening method according to claim 74, wherein the microorganism is selected from genus *Mortierella*.

76. (Withdrawn) A screening method wherein strains having a property of extracellularly secreting an unsaturated fatty acid-containing lipid are selected by subjecting a microorganism having an ability to accumulate the unsaturated fatty acid-containing lipid in the cell to mutation, gene manipulation or cell fusion, and culturing the strains obtained on a solid medium to select strains of which colonies are covered with lipid-containing lipid vesicles at the periphery.

77. (Withdrawn) The screening method according to claim 48, wherein said microorganism is subject to mutation treatment with N-methyl-N'-nitro-N-nitrosoguanidine (NTG).

78. (Canceled)

79. (Withdrawn) A microorganism selected by the screening method according to claim 47.

80. (Withdrawn) A microorganism selected by the screening method according to claim 48.